3: Anonymous U-4 (no date) 1920 RH1 Caucasia RH1

312 and 20,000 settlers planted. These improvements had cost £425,000 up to 1914. The water for irrigation was to be obtained chiefly by controlling the rivers Aras and Kura, which in their lower reaches overflow their banks and form permanent marshes. The question of the regulation of all the principal rivers of the country was being officially studied.

(c) *Forestry*

137 [65] The total area of forest land in Caucasia cannot be stated with certainty. The extent of the forests under the control of the Ministry of Forests was 12,218,000 acres, or about 11 per cent. of the total area of the country and rather more than half of its cultivated area. Kasperowicz [1] puts the total at 16,000,000 acres, and specifies as being favourably situated for commercial exploitation, 1,372,000 acres in Tiflis and Zakatali, 1,008,000 in Elisavetopol, 863,000 in Chernomoria, 807,000 in Kuban, 705,000 in Terek, 647,000 in Batum, 453,000 in Kutais, and 417,000 in Sukhum. The largest tracts of virgin forest are to be found on the mountain slopes of the Black Sea coast; there is a large forest north of Lake Gokcha, and another in the east of Elisavetopol Government; the middle course of the Kura is wooded throughout, and there are considerable forests in the Armenian Highlands. The best exploited forests in Transcaucasia are those in the Ateni valley near Gori, in the Adzhamer valley near Rion, and at Borzhom—all to the west of Tiflis or the east of Kutais.

The trees include walnut, box, beech, oak, birch, Caucasus palm, wych-elm, pine, alder, &c., of which the first five are the most valuable. The walnut and [439] box tree grow extensively in Transcaucasia; their timber formed a valuable article of export, but the quantities exported are declining, since the remaining walnut forests are remote from railways, and the box-wood is being held back to await more favourable

[1] Raffalovich, *Russia: its Trade and Commerce*, p. 94.

3: Anonymous U-4 (no date) 1920 RH1 Caucasia RH1

prices. Special varieties of conifers, birch, oak, and palm grow in the Caucasus. The Caucasus palm or *samshita* is not plentiful, but is greatly valued. The commonest tree is the beech, which occupies 25 per cent. of the total forest area; the oak occupies 16·7 per cent. and the pine 8·1 per cent. Plantations of bamboo at Chavka and Sukhum have been very successful, the cane being used for industrial purposes. 137

The Italian firm of Sbrajavacca was in 1914 exploiting the pine-forests of Svanetia and Ratce, the timber being floated down the river Rion. The firm has saw-mills at Socilava and Poti. 313 471

The Russian State levied on all timber a royalty varying according to the kind of wood, &c. The State also fixed the amount of timber to be felled in each area, which was then sold to the highest bidder. The total amount of timber which might be cut in the Caucasus was fixed in 1913 at nearly 220,000,000 cubic feet, of which only a little more than a quarter was actually delivered. [659]

(*d*) *Land Tenure*

The Caucasus as a whole has no fixed system of land tenure, nor are any of the characteristic Russian features of land-holding found there. The various kinds of landowner may be divided into six classes: the old nobility of Georgia; Tatar and Armenian peasant holders; nomad pastoral tribes, who occupy large areas of steppe land, especially in Stavropol Province; Russian settlers, placed on land vacated after the conquest; the Russian State, which owned large areas, mainly forest; and the Imperial family, which had acquired valuable appanages in the Caucasus. 423 471

No figures are available to show the proportions in which the land is held by these various owners; and, as a large part of the total productive area is occupied by nomads, no exact statistics would be possible. Moreover, recent events have to a great extent obliterated the old divisions, and new claims to ownership of much valuable land will have to be settled in the course of time.

5: Allen H-4 (no date) 1923 RH1 Caucasia RH1

491 The Russians have been careful however to develop communications over the Caucasus of extreme military and political [496] importance. A railway from Baku follows the historical passage-way by Derbend and connects with the Vladikavkaz-Rostov line and the main Russian system by Petrovsk, Grozni and Beslan. There is no other railway communication with Transcaucasia, but Russian strategic control has been ensured by four military roads. The main artery, the Georgian Military Road, 382 miles in length, leads from Mozdok via Vladikavkaz and the Daryal to Dushet, Tiflis and Erivan. On the west the Ossetian Military Road runs from Ardon, 20 miles north-west of Vladikavkaz, across the main range of the Caucasus by the Mamison Pass, and reaches Kutais by Oni. Along the formerly impassable Black Sea coast a metalled road now runs from Anapa via Novo-Rossiisk and Sochi to Sukhum and Kutais. On the east a metalled road from Petrovsk traverses Daghestan by Temir Khan Shura and the Vantliashet Pass and leads by Telav to Tiflis. The existence of these four roads is of supreme political importance. The Caucasus is no longer an insuperable military barrier, and the construction of the Black Sea and Ossetian roads has opened two new routes of invasion into Georgia. Other important roads are the lateral road west to east, Kutais—Tiflis—Elisavetpol—Shemakha—Baku; also Tiflis—Kars, Akhaltsikh—Batum, and Akhalkalaki—Ardahan—Ardanuch—Artvin—Batum. Batum has no direct main road connection with Poti or Sukhum.

[492] The Rion is navigable for 88 miles from its mouth at Poti; the Kur for 390 miles.

137 *Timber Resources.*—The Caucasian area is remarkable for the extent and wealth of its forests, the survival of which has been due as much to the sparsity, and consequently inconsiderable needs of the population, as to inaccessibility and impracticability of transport. In the south-eastern regions much deforestation has taken place, and many of the mountain-sides of Russian Armenia, formerly thickly wooded, are now bare of trees. Similarly, since the Russian conquest, the beech-forests of Chechnia have been greatly thinned. Dense forests of beech, oak and conifers still cover the northern slopes of the Caucasus along the banks of the Kuban and the Terek and their tributaries, while there are extensive forests round Lake Gökcha, east of Elisavetpol, and in Talish.

But it is along the Black Sea coast, on the south-western slopes of the Caucasus and in Georgia, where the many streams and shelter from the winds of the steppe are favourable to

5: Allen H-4 (no date)/1923 RH1 Caucasia RH1

growth, that the greatest wealth of timber is to be found. It is estimated that nearly 7,000,000 acres, or 38 per cent. of the total extent of the Georgian Republic, are covered with trees. "According to the climate and configuration of the soil the predominant species of tree vary in the different forest districts. In the subtropical zone of the Black Sea shore we find a luxuriant vegetation of leaf-trees and bushes from orange, lemon, pear, peach and apple-trees to beeches, walnut and box-trees. In the Sukhum district the abundance of chestnut-trees is particularly remarkable. From the shore eastward into the Provinces of Kutais and Tiflis beeches and hornbeams form the characteristic outline of the landscape up to an altitude of about 4,000 feet above sea-level, after which they gradually become interspersed, until entirely replaced by coniferous species. Oaks are found chiefly above the 5,500 feet level and form rich forests in Kakhethi; elms, chestnut and lime-trees grow well everywhere up to about 5,000 feet. While the soft-wood, aspen, elder and ash-trees are mostly confined to the moderate altitudes, the birch is found up to the limit of tree-vegetation, i.e. about 8,000 feet.

"The coniferous trees of the Georgian forests, as elsewhere, generally occupy the upper parts of the mountains, beginning above 4,000 feet. They consist of a number of high-stemmed species, several being peculiar to the Caucasus. The most abundant of them are the red and silver firs, pine, larch, yew and maple, the latter growing to enormous heights, particularly in Kakhethi. . . . Firs and Caucasian yew-trees form enormous forests in the districts of Gori and Akhaltsikh. In the lowlands of Eastern Georgia, as in the Shiraki Plain or Lower Kakhethi, the vegetation changes entirely; the high-stemmed trees disappear, and prickly juniper-trees and pistachio-bushes form the chief characteristic of the landscape."[1]

Less than half the area of Transcaucasian forests is susceptible of exploitation, the remaining acreage being at present inaccessible for practical purposes. Until the Revolution the forests were in part the property of the Russian State, in part of the Imperial Family and other landowners. The forests were exploited to a certain extent for local needs. The Italian firm of Sbrajavacca had a concession to cut the forests of Svanetia and Radsha, and floated timber down the Rion to saw-mills on the Black Sea Coast. Export had, however, declined before the war, owing to unfavourable prices.

After the Revolution the forests were declared to be the

[1] *Russo-British Chamber of Commerce Journal*, May 1920

7:Columbia U. S-4,5 1956 RH1 Caucasia
RH1

Precipitation

132 The sketch map, page 114, shows the different areas with their respective density of average precipitation. It should be noted that the area of greatest density of precipitation does not include the westernmost part of Colchis, which is the Black Sea littoral proper, since the clouds release the greatest amount of water in the immediate vicinity of the higher ranges only. In addition, the area around Lake Sevan, within the dry continental area of Trans-Caucasia, has an annual average of 500-1000 mm. of precipitation; this is like the entire Great Caucasus from the 2000 m. contour line in the southeast to the end of the entire system in the northwest, with the inclusion of the Stavropol' plateau. This area, with its average precipitation of 500-1000 mm. per annum, may be considered a transitional one between Black Sea maritime and Central Asiatic continental climate. The greatest portion of Dagestan, with the exception of spurs and ridges at an elevation above the 2000 m. level, belongs to the continental climate. This gives Dagestan a unique appearance, so very different from that of the central and northwestern Caucasus. The preponderant features of Dagestan are those of aridity and therefore a lack of higher vegetation, especially forests. Forests are absent in many regions of the Mediterranean and

137

137 Oriental world, not only because of natural conditions, but especially because of deforestation wrought by man throughout all historical periods down to the beginning of this century; this is particularly true of the South-European peninsulas, Anatolia, and Iran. Similarly, Dagestan, in the regions exposed to the dry southeast winds, is bare of the exuberant vegetation and forests which are so typical of the central and northwestern ranges. In Dagestan wide differences in vegetation are found between the sun-exposed and the sun-protected slopes of valleys or mountains, as is typical of most mountainous regions of Central Asia. This is mirrored even in the nomenclature, as for example the Küngöj-Ala-Tau ("Sunny side Ala-Tau ['Bluish Mountain'] ") and the Terskäj-Ala-Tau ("Shady side Ala-Tau"), the two main ranges of the central Tiän-shan, north and south respectively of the Issik-Kul. The sun-exposed slopes are often steppe-like, while only on the sun-protected side of a mountain is there higher vegetation.

Cool and Cold Zones

132 137 Above the 1000 m. level, the temperatures begin to recede rapidly with increasing elevation, and the cooler climates begin. Up to 2000 m. we have a transitional, moderately cool climate with a preponderance of forest growth, mostly deciduous species of the European type such as beech, oak, hornbeam, etc., but without the evergreen brushwood and bushes found in the sub-tropical zones. Above

132 137 the 2000 m. limit the cold climate begins. Forests and higher vegetation disappear completely. It is the region of the sub-alpine and alpine meadows used by the people only as summer pastures since precipitation takes place for a great part of the year in the form of snow, and the snow cover lasts for a long period.

This area marks the transition to Arctic climate, which coincides with the extent of the region of permanent glaciation beyond the snow line between 3300 and 3800 m. altitude. Between the area of the alpine meadows and that of eternal snow, there is a region of lower vegetation, consisting for the most part of cryptogamic species, which may be likened to mountainous tundras.

Exterior Aspect of the Various Zones

Thus the different climatic zones dominating the Caucasus give the sub-regions distinctive features sharply contrasting with each other. The northern slopes of the entire northwestern and central Caucasus are well-forested. The southeastern part, on the other hand, where Dagestan is located, is absolutely un-European and has the prevailing features of Anatolia, Iran, or Central Asia. The eastern portion of the southern slopes of the Great Caucasus resembles the alpine portion of the Riviera, but the western portion,

132 because of the great amount of precipitation
137 occurring in this area, is much richer in vegetation and increases the impression of sub-tropical conditions. The eastern portion of the southern declivity is in all respects more similar to the Riviera or the Lombardian slopes of the Alps, except for the absence of lakes. The opposite slopes of the Anti-Caucasus present essentially the same features - the sub-tropical portions of the Adjaro-Imeret'ian Mountains and, farther east, the northeastern boundary mountains of High Armenia, while the interior of High Armenia shares all typical features of the Anatolo-Iranian plains, of which it is the northeastern-most section. The peaks of High Armenia reach elevations as high as any in the Anatolo-Iranian system. The areas have the same latitudinal position. There is only one small area above the snow line; this is the volcanic massif of the Ararat. The Alagöz (Aragac) massif, on the other hand, is bare of snow during the summer. High Armenia differs from the rest of the Anatolo-Iranian plateaus by having a greater forested area, and thus more closely resembling the Great Caucasus in this respect.

GEOLOGY

*133 By approaching the Great Caucasus from the northern plains and proceeding southward towards the central main chains, one sees the different geological layers of the system appear in an almost perfect chronological
• [137] order. One sees the foothills of the Cenozoic period covered with rich forest growth, behind which the different chains of Cretaceous and Jurassic formations rise; the anterior and lower ones still forested with deciduous species in the lower parts and coniferous ones in the higher--the highest, inner ones being covered, in their higher regions, by alpine meadows and therefore bare of higher vegetation. These exhibit the outward appearance typical of such formations of the Mesozoic, often flat on one side and rather precipitous on the other, with straight, abrupt, rocky slopes, light grey and white in color, typical of the Jura mountain forms. At some distance farther to the rear, the main ranges are seen towering above the Jurassic formations, and almost all of these peaks are covered with eternal snow and ice, strengthening the impression of color contrast with the dark, often blue-black, crystallinic rocks, of which the main chains chiefly consist. The closer one approaches to the mountains, the more he loses the large perspective; the Jurassic chains cover the view of the crystallinic, ice-clad central

FLORA AND FAUNA

136
137 In both flora and fauna the Great Caucasus does not especially differ from Central and Mediterranean Europe, while Trans-Caucasia exhibits a number of specific features characteristic of the Anatolo-Iranian plateaus, of which it forms a part. Therefore, in this chapter only the more specific features will be given particular attention.

Flora

137 In contra-distinction to the high mountain systems of the Near East, in which the Caucasus is an important link, the Caucasus presents the agreeable aspect of a well-forested mountainous area. Exceptions, however, are central, eastern, and southeastern Dagestan and the two vast volcanic areas of the Anti-Caucasus; the Gegam mountains west of Lake Sevan, and the north central part of the Anti-Caucasus around Lake Toporovan, south of the Trialet'ian range. The reason for the absence of forest vegetation in those areas is probably less the human factor, which in all countries of ancient culture has wrought an awful devastation, but the natural conditions -- the insufficiency of the soil in those areas, and climatic factors, especially the deficiency in precipitation.

Trees of natural growth and regular size are found in the Caucasus on higher latitudes

137 than in the Alps. They mount up to the regions between 2300-2400 m. elevation; on the northern slopes the forest zone extends higher up than on the southern, undoubtedly because the distribution of humidity is more constant and the irradiation of the sun less vigorous than on the southern side of the system. Higher up follows the zone where the azalea and rhododendron bushes grow. At the time of blossoming they furnish a wonderful adornment to the sub-Alpine landscape. On the northern slopes, they rarely grow higher than 1-1 1/2 m.; but on the southern, or rather the southwestern slopes, those of Colchis, they become much higher and often form real groves -- however, there are no forests as on the southern slopes of the Himalayas. In the same zone small daphnes and oxalis are found. Beyond this region comés the large zone of all the typical Alpine plants of the mountainous meadows, which borders on the narrow area of the Alpine tundras, and separates it from the highest regions of bare rock.

The forest consists, in general, of the same species as those of Central Europe, apart from many coniferous trees: beech, hornbeam, oak, ash, and maple. There are also linden and chestnut, rarely found in Central European forests, since they demand a slightly higher temperature than is found in Central Europe. The chestnut tree in all probability stems from the Black Sea and Caucasus area. In the mountainous and alpine areas of Europe coniferous

●137 trees are those which climb the highest. There is a species of pine, known as the dwarf fir, which occurs in a dwarfed shape, creeping along the slopes. However, in the Caucasus it is the birch which occurs on the upper limit of the forest zone, just as in the Arctic region the birch may now and then be found slightly farther north than its competitor, the larch; in general, the northernmost limits for both varieties are never too far apart, as they alternate in out-distancing each other.

Among the bushes, the box-tree (buxus) deserves special mention. It grows near P'ot'i around the estuary of the Rioni, along the Black Sea coast, in almost impenetrable jungles. Because of its precious wood, which prior to the First World War was being cut and exported chiefly to England, the boxwood tree probably has come to the verge of extinction.

The Caucasian rivers form marshes and swamps in their lower reaches; Colchis has marshy areas which for the last 25 years have been placed more and more under drainage and cultivation. Here were large areas covered by jungles of densely-growing ferns of impressive size--although not attaining that of the New Zealand species. This contributed to the unhealthy conditions of these moist tropical areas; the ferns have therefore been subjected to continuous reduction, with their ultimate extinction as the goal.

But returning to the phanerogamous growth, the azalea pontica and the rhododendron

• /37 are the overwhelmingly predominant Caucasian bush growth. Both species are found in abundance on a very large strip within the forest zone and beyond it, over an absolute vertical [231] distance of 1800 m. Since bee-keeping is very common in the Caucasus, the azalea has in those regions a strong influence upon the composition of the honey. Strabon tells us of this [276] particular kind of honey, which seems to contain an inebriating, intoxicating, or narcotizing effect, at least upon certain individuals; people are said to become drunk, mad, furious, or even crazy. The present-day Turks in the areas along the Black Sea ranges, where the azalea is also found, call this honey däli bal ("crazy honey"), exactly the same expression used by Strabon, XII; 3, 18. A number of travelers reject these tales -- cf. the classical passage in Xenophon's "Anabasis", IV; 8, 20/21—as fables, probably because the azalea honey did not have any effect upon them.

The Caucasus is the original home of a number of fruit trees and other plants of great use to man. Thus, the walnut tree and hazelnut bush are natives of the Caucasus, where they are found in great groves or growing beside other trees in the forests. The valleys of Imeret'ia are generally considered to be the original home of the walnut tree. The hazelnut bush is abundant in the Caucasus as well as all over the Black Sea mountains in northern Anatolia.

But a small creeper, which with the ex-

137 pansion of the Roman Empire conquered the whole world--every area in which it can live--is the grapevine. The tradition of all ancient and classical peoples of the East and Europe states that the vine comes from the fabulous land of the Caucaus, and its name is undoubtedly of old Caucasian origin: Latin vinum, Greek oinos (from an older voinos), Arabic wajn, etc., going back to the same prototype as the Armenian and the Georgian ɣvino. Everywhere along the southwestern slopes of the Caucasus, the wild variety of vine can be found living in the forests along with other lianas, forming living garlands around the trees.

137 245 Fruit trees and fruit shrubs of all kinds grow abundantly in Caucasian lands in both wild and cultivated varieties. In all historical epochs, but especially during the last 50 to 75 years, much has been added to the natural riches of the Caucasian flora, since for experimental purposes a great number of foreign plants have been cultivated there. Many, if not most, of them have since become natives, as for example most of the citrus fruits, especially oranges, lemons, and tangerines--a special variety of the latter, the Unshiu tangerine, having been introduced from Japan. In a particularly suitable region of Adjaristan, at Chakva, tea has been raised since the end of the last century, and it seems to have acclimatized very well. However, the area suitable is very small, so that there is no possibility of real tea plantations.

∞∞that there is no possibility of real tea planta-
243tions. Corn (or maize) has been cultivated in large areas south and north of the Great Caucasus for more than 100 years. A more recent experiment has been made with rice, which has been successfully grown in Colchis and the Talysh coastal strip.

As for the cultivated grains, it is barley which climbs highest in the mountainous areas. Thus barley is the only cereal which can be grown in the higher areas of permanent habitation, for instance, in Svanet'ia or Oset'ia. It has been seen in Oset'ian villages and on the slopes of Alagöz, Ararat, and other parts of Armenia, at elevations up to 2500 m. Rye is grown up to 2000 m., i.e., 1000 m. higher than in the Alps. Even corn ripens at an elevation
245of 900 m. The vine is found in Oset'ian villages (near Kurta) up to 1090 m. The best wines are made from growths found at an elevation of 750 m., and around that line, in the Alazani valley in Kakhet'ia. These vines yield the excellent wines of T'elavi, Napareuli, Tsinandali, and other famous places.

●137 As late as the 19th century, after the Russian conquest, senseless deforestation was practiced, often with the help of fire; so that entire areas were laid bare of woods. But in too many instances neither fruit trees, vines, nor cereals were planted afterwards. Only during this century has the century-old practice of deforestation in the Caucasian countries of ancient culture been brought to a halt.

• /37 In Trans-Caucasia, east of the Meskhi-Surami range, the abundance of vegetation diminishes gradually with the distance from the Black Sea climate zone; the farther to the east, the more steppe-like the country becomes, finally culminating in a typical dry steppe, interspersed with smaller or larger desert areas. A tree typical of the central and eastern Trans-Caucasian plains is the mulberry, which apparently has been cultivated there since the be-
[23] ginning of written history. The chief use of the mulberry has always been for sericulture, an ancient craft in Trans-Caucasian lands. The vegetation most characteristic of the sub-tropical steppe areas of the Near East is represented here, especially wormwood (artemisia), with its distinctive invigorating smell, various stipa species, etc. Artificial irrigation is becoming more and more widespread, but has been practiced on a more or less small scale since time immemorial. The small strip of land between the Talysh mountains and the Caspian coast has a humid, sub-tropical Caspian climate like that of the Persian provinces of Gilan and Mazandaran; it abounds, therefore, in the corresponding sub-tropical and tropical plant growth such as bamboo, rice and tea.

Of the above-enumerated plants, many of the useful ones are newcomers introduced by man, such as the orange and other citrus fruits, corn (maize), rice, tobacco, cotton, and tea. Corn is grown very widely also in the northern

137 part of the Great Caucasus (and not only there but also in the Ukraine and areas on the same latitude); this is also true of tobacco. But rice demands a definite type of humid, sub-tropical or tropical climate with abundant irrigation. Since cotton is somewhat less demanding, it is grown on the southern fringes of the Trans-Caucasian plains, chiefly on the northeastern foothills of the Little Caucasus and in the newly-irrigated southern portion of the Mughan steppe area; other areas include Central Armenia, in the Araxes valley, together with Nakhichevan.

[245] Before the First World War, tea was planted for experimental purposes, after the Ceylonese fashion. This was at Chakva in Adjaristan, 11 km. south of Kobulet'i on the Black Sea coast. On the same estate Japanese Unshiu tangerines and bamboo were also planted. The tea plantation amounted in 1928 to a mere 600 ha, but it may be larger now. In addition to the Chakva plantation, tea has also been planted during the last 25 years in Northwestern Colchis, in the neighborhood of Zugdidi and Ochamchire; also near Zakatali and to the southeast, near the city of Lenkoran in the Talysh area.

To the list of newcomers also belongs the date palm, planted at present in not very great quantities in this same humid sub-tropical Lenkoran area.

311
249 around the headwaters of the Kura River.

Cinchona: This subtropical tree, which is the source of quinine, was imported from South America. It is cultivated in the Kura valley westwards from Gori.

Eucalyptus: Occurs in Kolkhida, along the Rion River, then around the headwaters of the Kuban River, and on the Lowland of Lenkoran'. The tree is used as building material, and as a source of oil used in medicine and perfumery.

137 Bamboo: Occurs only in Kolkhida.

Of the other tropical, or subtropical trees, shrubs, or plants the palms, the cactus, and the magnolia are those which occur in significant amounts in the South Caucasus.

7: Columbia U. S-4, 5 1956 RHl Caucasia
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Forestry

311 137 315 The subtropical, deciduous (oak, beech, hornbeam) or coniferous (pine, juniper) forests constitute one of the many assets of the Caucasus. The Georgian Republic and the southern sections of the Krasnodar Kray are especially rich in forests. One finds many forests in North Armenia, in West Azerbaijan on the slopes of the Lesser Caucasus, and on the Lenkoran' Lowland, which last is famous for its subtropical forests. On the northern slopes of the Greater Caucasus, in the Stavropol' Kray, in the Groznyy Oblast, and in Dagestan the forests are less dense. Here the forest area is chiefly in the mountainous parts of the various administrative units like the North Ossetian ASSR, the Groznyy Oblast, and the Dagestan ASSR. The numerous lumbering, sawmilling, woodworking and furniture plants of this area indicate an extensive exploitation rather than great forest resources. Further to the north, north of the Kuban-Terek line, forests are virtually non-existent and the lumbering industry of Astrakhan', Rostov, etc. is based on imported timber floated or transported down the Volga and Don Rivers.

311 137 Area by area, the distribution of trees is as follows:

Azerbaijan SSR: Oak prevails in the sparse forests of the Lesser Caucasus and on the lower slopes of the Greater Caucasus,

at
311
137 while oak forests cover the western parts of the Lenkoran' Lowland. Subtropical forests (with chestnut and oak trees together) grow in the vicinity of Lenkoran'. Beech is the typical tree of the higher slopes of the Greater Caucasus.

Armenian SSR: Oak is the predominant tree in the forests of northeastern Armenia. Elsewhere, the forests are almost non-existent.

Georgian SSR: The most heavily forested area in the Caucasus. The forests of Georgia proper offer a great variety of trees. The lower parts of the Rion River valley are covered by subtropical forests (with chestnut and oak trees together), whereas in the lower part of the Kura Valley oak is the typical tree. The higher slopes of these valleys are covered with beech, whereas pine is dominant around the head waters of the Ingur and Rion Rivers. Of the sub-units the Adzhar Republic has, according to the altitude, a subtropical, a beech, and a pine zone; the Abkhaz Republic has similar zones. The forests of the South Ossetian AO are homogeneous, with beech predominating.

Astrakhan' Oblast: Almost completely treeless.

Groznyy Oblast: On the southern slopes of the Sundzha Valley oak, and at higher altitudes beech is common. The rest of the oblast is treeless.

311
137 Dagestan ASSR: One finds forests only in the extreme western and eastern sections where the lower slopes are covered by oak, and the higher slopes by beech. The middle part (the valley of the Sulak River and its tributaries), and the northern sections are treeless.

Stavropol' Kray: This kray is almost treeless. Only in the southern part of the North Ossetian ASSR is there an oak zone, and at a higher altitude a beech zone.

Krasnodar Kray: The mountainous southern part and the Black Sea littoral are covered with huge forests which make the Krasnodar Kray the second most heavily forested area of the Caucasus. The northern section has oak, beech, and pine zones according to altitude. On the littoral, around Novorossiysk, oak and juniper, and around Sochi beech are predominant.

Rostov Oblast: Almost completely treeless.

*

Caucasian forestry includes the following trees:

Subtropical trees: Chiefly in the Lenkoran' Lowland, on the Black Sea coast of Georgia, (from Sukhumi as far as Batumi) and around the Rion Valley.

Juniper: In the area around Novorossiysk, mostly together with oak.

Chestnut: This tree is grown on a commercial scale in the subtropical forests of the South Caucasus. In addition to this, it is frequent in the oak forests of the Krasnodar Kray.

Oak: The oak is especially typical of the lower slopes of the Greater and Lesser Caucasus. It is the common tree of the eastern South Caucasus (Azerbaijan, Armenia). In the North Caucasus, except in the Kabardian ASSR, oak forests constitute a belt covering all the northernmost slopes of the Greater Caucasus.

Beech: This higher-altitude tree forms two belts of forests in the South Caucasus. One of them cuts through the whole South Caucasus and stretches from the Tuapse area as far as Kuba (in Azerbaijan). The other, in the Lesser Caucasus, covers the area between Batumi and Tbilisi. In the North Caucasus the beech also forms a forest belt (in three sections), which, however, is less impressive than the oak zone which it parallels.

Pine: This tree of the highest altitudes grows in the western parts of the Greater Caucasus and covers a crescent-shaped area. It occurs also at the highest points of the Adzhar Republic.

$a^2.2$ Tree Varieties

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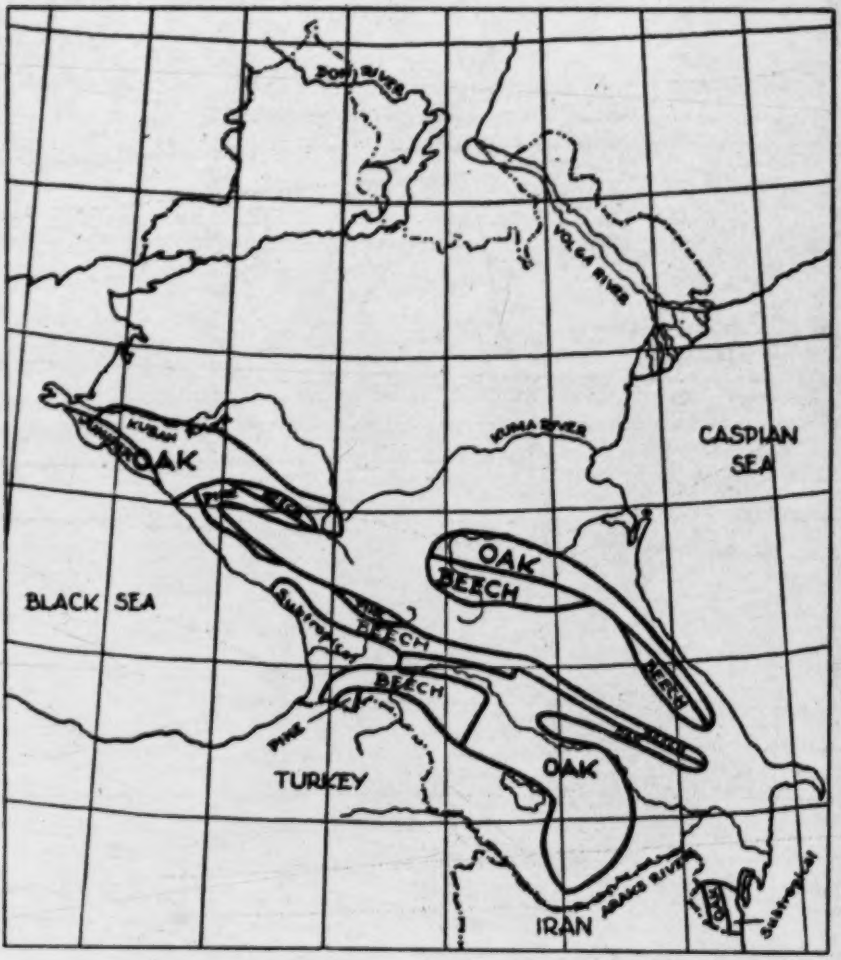

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SU 133 C 133 and glaciers. Here Mt. El'brus and Mt. Kazbek (16,541 feet), two extinct volcanoes, are evidence of the considerable volcanic activity which accompanied the folding processes. In this portion of the Greater Caucasus rise the Terek River, in the north, and the Rion River, in the south. East of Mt. Kazbek the main divide is formed primarily of Jurassic beds and nowhere exceeds 14,750 feet. The glaciers gradually decrease in size. They disappear altogether near the Caspian Sea, where the Greater Caucasus becomes a low range of hills rising to 1,075 feet. The northern spurs of this section of the Caucasus form an extensive mountain region known as Dagestan. The chief rivers here are the Sulak in the north and in the south the left affluents of the Kura River.

The Kuban' and the Terek are the main rivers of the Northern Caucasus. Due to their mountain origin, high water occurs in the summer when snow and ice melt in the high altitudes. The force of the current washes out the upper valleys, and in depositing the sediments in the lower course it forms sand banks, which render these streams useless for navigation. They are, however, important for irrigation and as a source of hydroelectric power. In their lower reaches these rivers form large swampy deltas, with many lakes and channels, overgrown with reeds and other marsh vegetation. The large quantities of sediment SU carried by the Terek act to enlarge the delta from year to year.

SU 132 C 132 The climate of the Northern Caucasus is of the continental type and is exposed to a series of opposing air mass movements from the west, bringing moisture from the Black Sea and from the east, where they originate in the dry desert regions of Central Asia. Although the winters are short, they are severe, and frosts of below 0° F occur frequently. Spring arrives at the end of February and soon turns into a hot summer. Most of the precipitation occurs in the summer and is greater in the west and in the high altitudes. The heaviest rainfall takes place on the southern slopes of the Greater Caucasus near the Black Sea (up to 25 inches yearly); in the Kuma-Manych Depression to the northeast, precipitation is less than 12 inches a year. The climate of the Greater Caucasus range, while it varies, depending on the elevation and the location, is marked by a steady decrease of precipitation from west to SU east.

137 C 137 In accordance with the amount of precipitation, the type of vegetation varies throughout the region. The western ranges are covered with deciduous forests, with oak and beech, while the eastern highlands of Dagestan are nearly treeless. At lower altitudes begins the oak forest

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steppe, extending as far as the Kuban' River; north of that stream it follows the fertile black-earth steppe, which continues to the lower Don. In the northeast, however, the decrease in precipitation is evidenced by a gradual change to the dry wormwood steppe, with salt flats, shifting sands, and bitter-salt lakes, forerunners of the Caspian semi-desert in the east.

The population of the Lower Don and Northern Caucasus is more than 9 millions, giving an average density of 65 per square mile. The greatest concentration of the population is north of the Kuban'-Terek line, in the steppes, where Russians and Ukrainians predominate. These two ethnic groups came to this region from the north in the eighteenth and nineteenth centuries and constitute at present nine tenths of the total population. The Russians settled mainly in the eastern steppes, the Ukrainians along the Kuban' River. South of the Kuban'-Terek line live the indigenous mountain peoples of the Greater Caucasus; the Adyge (Cherkess or Circassians), Kabardinians, Ossetians, Avars, Laks, and others. The Slavic groups live in large administrative divisions, such as Rostov and Groznyy oblasts, Krasnodar and Stavropol' krays, while the many mountain peoples are organized in autonomous units, varying in importance and size, on the northern slope of the Greater Caucasus.

Four ethnic groups of the Northern Caucasus lost their national identity and were resettled in other parts of the USSR following their alleged collaboration with the Germans during the Second World War. The autonomous oblast of the Karachay was dissolved in 1943, and part of its territory was given to Stavropol' Kray, while the southern portion, including the capital, Mikoyan-Shakhar (now Klukhori), was ceded to the Georgian SSR. The Balkar nationality, which constituted 16 percent of the population of the Kabardino-Balkar Autonomous SSR, was dissolved in 1943, and a section of its territory, in the southwest of the republic, was transferred to the Georgian SSR. The republic became the Kabardinian Autonomous SSR. The Chechen-Ingush Autonomous SSR was also dissolved in 1943 because of the alleged fifth-column activities of its two main ethnic groups, the Chechen and the Ingush. The greater portion of the territory became part of the newly created Groznyy Oblast and the adjacent North Ossetian Autonomous SSR (west), Georgian SSR (south), and Dagestan Autonomous SSR (east) each received strips of land along the frontiers.

The Kuban' steppes are among the chief grain-producing regions of

in the various sections; generally it is less than 12 to 14 inches a year, necessitating irrigation methods in the low-lying Aras valley.

Vegetation types throughout Transcaucasia vary in accordance with the predominant climate. Along the Black Sea coast the high temperatures and humidity lead to the development of a very luxurious and dense vegetation, forming nearly inaccessible jungles in some sections. The trees, which are largely of Western and Central European origin, reach an exceptionally large size. In spite of the vegetation cover, there is much erosion in this area and the streams are very muddy. Among the most common garden plants are magnolia, cactus, eucalyptus, tangerine, orange, lemon, olive, tea, bamboo, and assorted palms. The dry steppe vegetation of eastern Transcaucasia, with its salt flats and a meager plant cover (consisting chiefly of wormwood, saltwort, and thorny bushes), is in sharp contrast to the small subtropical zone in the Lenkoran' lowland, where the very hard and dense ironwood is most important. The ranges and gorges in the Armenian plateau are covered with deciduous trees; the steppes on the plateau have a rather rich grass cover. In addition to animals commonly found in the Greater Caucasus, the fauna of Transcaucasia includes Mediterranean and Iranian species such as the porcupine and the dzheyran-antelope, and in the steppes, numerous rodents. In the Talysh range leopards and occasionally hyenas and tigers are encountered. Along the Lenkoran' littoral there are many aquatic birds for which a reserve has been created at Kizyl-Agach.

The population of Transcaucasia belongs to a large number of ethnic groups. The Georgian group includes the Georgians proper, and many smaller related nationalities, such as Svans, Khevsurs, Pshaves, Imeretians and Adzhars; the Iranian group comprises the Ossetians, the Kurds, and the Talysh people, and the Abkhaz form a branch of the Caucasian group. The Georgians and the Armenians are the most numerous. Eastern Transcaucasia is settled by the Azerbaijan people of the Turkic group, who migrated to this area from the northeast from beyond the Caspian Sea.

The total population of Transcaucasia (about 8,100,000 people) is distributed quite irregularly, due to relief and climatic factors. Most sparsely settled are the Greater and the Lesser Caucasus ranges and the dry steppes in the eastern sections, while the Black Sea littoral of the Georgian SSR and the Rion valley show the greatest population density.